C-A OPERATIONS PROCEDURES MANUAL

4.61 Procedure for NMC Commissioning and Checking Integrating NMC Monitors

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Attachments

Hand Processed Changes

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Collider-Accelerator Department Chairman Date

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4.61 Procedure For NMC Commissioning And Checking Integrating NMC Monitors

1. Purpose

To provide instructions and documentation for commissioning, replacement, and periodic testing of the integrating NMC monitor which includes the controller display unit, an electronic integrating circuit, and external scintillator/light-guide/photo-multiplier unit (paddle).

2. Responsibilities

Members of the Security team may execute this procedure. The Security System Cognizant Engineer (SSCE) is responsible for certification of its proper completion.

3. Prerequisites

3.1 Small pocket screwdriver.

3.2 Multimeter, preferably Fluke Model 87.

4. Precautions

Performance of testing involves close proximity to voltages up to 1000 volts dc but less than ten joules of stored energy and less than ten ma of current.

5. Procedure

5.1 Initial Beam Line Setup

5.1.1 With power off, adjust meter set screw so that needle reads on 1 (low end of scale).

5.1.2 Turn on power.

5.1.3 Set alarm pot located to the right of the red push button, at 10 fully clockwise, and fail pot located to the right of the yellow push button fully counter clockwise at 0,

5.1.4 Depress the "OP-TEST" toggle switch to the TEST position and hold down during adjustment.

5.1.5 Turn the “TC” pot with the screwdriver until the meter reads 1 at the beginning of the low end of the scale.

5.1.6 Turn the “Fail” pot until the yellow light comes on. Turn slowly in the opposite direction until the light goes out.

5.1.7 Turn the “TC” pot until the meter reads 100K (full scale).

5.1.8 Turn the Alarm pot until the red light goes out. Turn slowly in the opposite direction until the light comes on.

5.1.9 Repeat steps 5.l.5 through 5.1.8 until satisfactory calibration is obtained. The NMC manual describes satisfactory calibration on p-30, sec. 6.5.

5.1.10 Adjust the “TC” pot until the meter reads just above full scale.

5.1.11 Release the “OP-TEST” switch.

5.1.12 Turn on the “AB” (artificial background) switch.

5.1.13 Check that the meter reads near the middle of the first decade, if so continue to 5.1.14

5.1.13.1 Remove the metal sleeve on the photo tube base to expose the artificial background adjustment pots.

5.1.13.2 Adjust the artificial background pot, R402 on the PLD-6 card in the detector, until the meter reads somewhere in the middle of the first decade (1-10).

5.1.14 Press and hold the red bell silencer push button located on the back panel of the NMC enclosure.

5.1.15 Set the range DIP switch to select Range 1.

5.1.16 Adjust the integrating trip level potentiometer to 5.0.

5.1.17 Disconnect the T0 cable from the NMC enclosure. Within a few minutes, at the most, the NMC should generate an alarm and the relay should trip.

5.1.18 Verify that the trip has occurred, then reconnect the T0 cable.

5.1.19 Select Range 4 on the range dip switches and release the red bell silencer push button.

6. Documentation

None.

7. References

7.1 Instruction Manual, Gamma Alarm System, Model GA-6, 7-2-3-3-1-1-07, NMC Corporation, N. Arlington Ave., Indianapolis, IN 40218

7.2 C-A-OPM 9.1.14, "Establishing NMC Response in a Beam Line".

8. Attachments

None.